

REMARKS

Claims 1 and 4-9 are pending in the application. Claims 1, 4, 5 and 6 have been amended and claims 2 and 3 have been canceled. Claims 7-9 have been added. Favorable reconsideration of the application, as amended, is respectfully requested.

I. REJECTION OF CLAIM 1 UNDER 35 U.S.C. § 102(b)

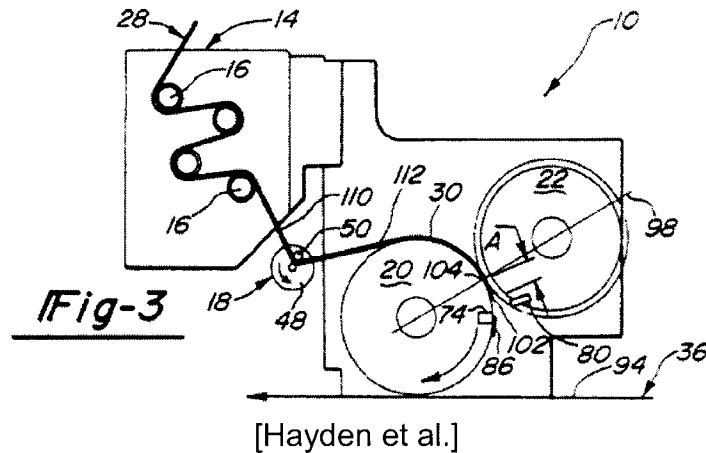
Claim 1 has been rejected under 35 U.S.C. § 102(b) as being anticipated by Hayden et al. (U.S. Patent No. 5,407,513). Applicants respectfully request withdrawal of the rejection for at least the following reasons.

Claim 1 recites a velocity-changing apparatus for changing a velocity of a continuous web comprising a drum for transporting the continuous web at a transport velocity which is generally equal to a circumferential velocity of the drum while *changing the circumferential velocity periodically at least once per one rotation of the drum*.

In the apparatus of claim 1, the drum changes its circumferential velocity periodically at least once per one rotation of the drum. This allows the continuous web on the drum to be processed when the circumferential velocity of the drum slows down, i.e., the transport velocity of the continuous web slows down, allowing for more time for processing the moving web. In addition, the transport velocity of the continuous web can be accelerated by accelerating the circumferential velocity of the drum when the processing is not performed, thus making the average transport velocity of the continuous web to be in conformity with the speed of the production line as a whole (see paragraph [0009] of the specification).

Hayden et al. is directed to a method and apparatus for cyclically accelerating and decelerating a moving web of material. The apparatus of Hayden et al. includes an eccentric accelerator positioned between an upstream slower moving set of first rollers (16) and a downstream faster moving second roller (20). Hayden et al. fails to teach or disclose changing the circumferential velocity of the drum (20). Instead, Hayden et al. teaches that applicator roll 20 (drum) maintains constant direction and velocity (Abstract, col. 5, lines 61-63). Metering rolls 16 also operate at a constant speed (col. 4, lines 3-5; col. 5, lines 61-63). Knife roll 22, which cuts the web against roll 20, has a rotational velocity that matches that of the applicator roll 20. Thus the velocity of knife

roll 22 is also constant. It is the acceleration mechanism 18 of Hayden et al. that varies the path length of the web 28 between the metering rolls 16 and the applicator roll 20. Metering rolls 16 and applicator roll 20 maintain their respective constant direction and velocity, while eccentric accelerator 18 serves to alternately decelerate, reverse, and then allow acceleration of the leading end 30 of the web 28.



With the apparatus of claim 1 of the present invention, a continuous web is transported at a transport velocity that is generally equal to a circumferential velocity of the drum. Slide does not occur between the rotating drum and the continuous web. Therefore, working efficiency is improved, and large scale production is made possible. With the apparatus of Hayden et al., slide occurs between a roll and a web, resulting in inefficiency and waste.

Furthermore, claim 1 has been amended to recite that the velocity-changing apparatus further includes a processing device for processing the continuous web on the drum. The processing device is a welder for welding the continuous web. Support for the amendment to claim 1 may be found in original claims 2 and 3. Hayden et al. fails to teach or suggest changing the circumferential velocity periodically at least once per one rotation of the drum, and fails to teach or suggest a drum on which the continuous web is welded and cut. With the velocity-changing apparatus of claim 1, as the transport velocity of the continuous web slows down, more time is permitted for processing the continuous web on the drum.

Because Hayden et al. fails to disclose all of the claimed features of the apparatus of claim 1, specifically, that the circumferential velocity of the drum is changed periodically and that the continuous web is welded and cut on the drum, the rejection under 35 U.S.C. §102(b) should be withdrawn.

II. REJECTION OF CLAIMS 2-6 UNDER 35 U.S.C. § 103(a)

Claims 2-6 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Hayden et al. (U.S. Patent No. 5,407,513) in view of McCabe (U.S. Patent No. 6,596,108). The Examiner contends that it would have been obvious to include an ultrasonic welder for bonding layers of material together, as taught by McCabe, in the device of Hayden because such a modification would have been within the technical grasp of the person of ordinary skill in the art. The Examiner further contends that the apparatus of Hayden et al. and McCabe as combined would be capable of lowering the speed of the web so that the processing device and the cutter could operate on the web.

Applicants respectfully traverse the rejection for at least the following reasons. The subject matter of claims 2 and 3 has been incorporated into claim 1. Claim 1 has been further amended to recite that the continuous web is in contact with and wound around at least a portion of the surface of the transporting drum. Support for this amendment can be found at least in Figures 1(a), 2, 3(a), 3(b) and 4-6. As discussed above with regard to claim 1, Hayden et al. fails to disclose that the circumferential velocity of the drum is changed periodically. The drum transports the continuous web at a transport velocity which is generally equal to a circumferential velocity of the drum. Hayden et al. also fails to teach or suggest a drum on which the continuous web is welded and cut.

McCabe is directed to a method and an apparatus for slowing down a moving web for performing an operation on the web and then accelerating the moving web. McCabe (see Fig. 2 below) discloses a pair of eccentric rollers mounted upstream (30) and downstream (32) from a rotary drum (18). The eccentric rollers are synchronized so that the web 12 is at its lowest velocity as one of the anvils 16 of the rotary drum 12 travels into alignment with the ultrasonic horn 14. In McCabe, contact pressure occurs

between anvils 16 and the web 12 only when the web is bonded by ultrasonic. Therefore, the rotary drum 18 is not a drum substantially *transporting the web*, and thus McCabe fails to teach or suggest varying the circumferential velocity of a *drum transporting a continuous web*.

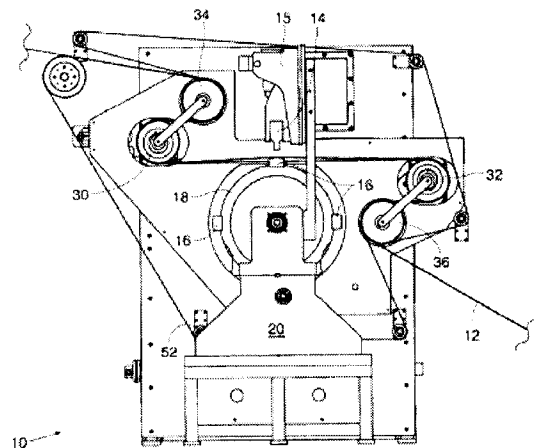


Fig. 2
[McCabe]

As recited in claim 1, the apparatus of the present invention includes a cutter for cutting *on the drum* and a welder for welding *on the drum*, the continuous web being transported by the drum. An advantage of the apparatus of claim 1 is that the transport velocity of the continuous web slows down, which allows for more time for processing. The circumferential velocity of the drum is changed periodically, allowing for cutting and welding on the drum. Even if one skilled in the art were to combine the teachings of Hayden et al. and McCabe, the combination would not result in the apparatus presently claimed, as neither Hayden et al. nor McCabe discloses or suggests changing the circumferential velocity of the drum that transports the continuous web and processing the continuous web as it is transported by the velocity-changing drum. Accordingly, the rejection of claims 2-6 under 35 U.S.C. §103(a) should be withdrawn.

III. NEW CLAIMS

Support for new claims 7 and 9 are found in the specification at page 12, paragraph [0027] and in FIG. 1(b). Support for new claim 8 is found at least in original claim 6. New claims 7-9 are directed to a velocity changing apparatus that includes a

movable member that is a movable roller fixed to an arm that can be moved toward and away from the drum. An advantage of this embodiment is that the movable member is easily controlled because the moving velocity of the movable member is easily measured. Adjusting the moving velocity and moving distance of the movable member allows the transport velocity of the web and the time in which the transport velocity of a web will increase (or decrease) to be adjusted relatively easily, without, for example, having to provide an eccentric roller having a different diameter.

IV. CONCLUSION

Accordingly, claims 1 and 4-9 are believed to be allowable and the application is believed to be in condition for allowance. A prompt action to such end is earnestly solicited.

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should a petition for an extension of time be necessary for the timely reply to the outstanding Office Action (or if such a petition has been made and an additional extension is necessary), petition is hereby made and the Commissioner is authorized to charge any fees (including additional claim fees) to Deposit Account No. 18-0988.

Respectfully submitted,

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